

## Patent Abstracts of Japan

PUBLICATION NUMBER : 06327231  
PUBLICATION DATE : 25-11-94

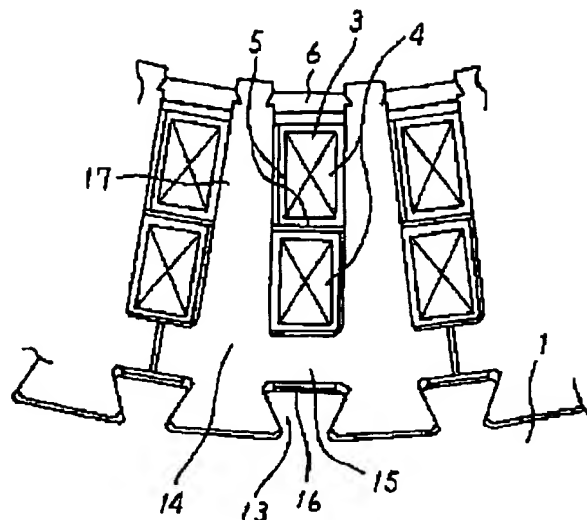
APPLICATION DATE : 10-05-93  
APPLICATION NUMBER : 05130974

APPLICANT : CHODENDO HATSUDEN KANREN KIKI  
ZAIRO GIJUTSU KENKYU KUMIAI;

INVENTOR : INUKAI MOTOYOSHI;

INT.CL. : H02K 55/04

TITLE : STATOR OF SUPERCONDUCTING  
ROTARY ELECTRIC DEVICE



**ABSTRACT :** PURPOSE: To firmly fix an armature coil against an electromagnetic force in the tangent direction by providing a recessed portion of a sector shaped member to a part provided opposed to a slot, implanting a wedge into a gap between a projected portion of a magnetic shield and the recessed portion of the sector shaped member and coupling a teeth portion of the sector shaped member to the adjacent teeth portion with the recessed portion of the sector shaped member.

**CONSTITUTION:** A recessed portion 15 in the shape of tab table is provided at a part provided opposed to a slot 3 in the side of external circumference of an insulated teeth 14, the insulated teeth 14 is arranged in the circumferencial direction and laminated in the axial direction by aligning the recessed portion 15 in the shape of the tab table of the insulated teeth 14 with the projected portion 13 of the tab table of a magnetic shield 1. Here, a wedge is implanted in the axial direction into the gap between the projected portion 13 of tab table of the magnetic shield 1 and the recessed portion 15 of tab table of the insulated teeth 14 to fix the insulated teeth 14 to the magnetic shield 1. Thereby, fall of the teeth portion 17 by electromagnetic force in the tangent direction can be controlled and strong electromagnetic force in the radius direction can also be received by the magnetic shield 1.

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## PATENT COOPERATION TREATY

FRO  
TMT

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To:  
FISH & RICHARDSON P.C.  
Attn. Walpert, Gary A.  
225 Franklin Street  
Boston, Massachusetts 02110-2804  
UNITED STATES OF AMERICA

INVITATION TO PAY ADDITIONAL FEES

RECEIVED

(PCT Article 17(3)(a) and Rule 40.1)

NOV 27 2001

FISH & RICHARDSON, I  
BOSTON OFFICE

Date of mailing (day/month/year)	19/11/2001
Applicant's or agent's file reference 05770-124W01	PAYMENT DUE within 45 <del>days</del> /days from the above date of mailing
International application No. PCT/US 00/42110	International filing date (day/month/year) 09/11/2000
Applicant AMERICAN SUPERCONDUCTOR CORPORATION	

## 1. This International Searching Authority

- (i) considers that there are 02 (number of) inventions claimed in the international application covered by the claims indicated ~~XXXX~~ on the extra sheet:

and it considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2 and 13.3) for the reasons indicated ~~XXXX~~ on the extra sheet:

Docketed By Billing Secretary

Due Date:

Deadline:

Initials:

Docketed By Practice Systems

See Invitation  
ARA (con)1/31/02  
2/19/02

CPS

- (ii) ☒ has carried out a partial international search (see Annex) on those parts of the international application which relate to the invention first mentioned in claims Nos.:  
**1-15**

☐ will establish the international search report

- (iii) will establish the international search report on the other parts of the international application only if, and to the extent to which, additional fees are paid


## 2. The applicant is hereby invited, within the time limit indicated above, to pay the amount indicated below:

EUR 945,00 x 01 = EUR 945,00  
Fee per additional invention      number of additional inventions      total amount of additional fees

Or, \_\_\_\_\_ x \_\_\_\_\_ = \_\_\_\_\_

The applicant is informed that, according to Rule 40.2(c), the payment of any additional fee may be made under protest, i.e., a reasoned statement to the effect that the international application complies with the requirement of unity of invention or that the amount of the required additional fee is excessive.

3. ☐ Claim(s) Nos. \_\_\_\_\_ have been found to be unsearchable under Article 17(2)(b) because of defects under Article 17(2)(a) and therefore have not been included with any invention.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Gregory Adam
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1. The present communication is an Annex to the invitation to pay additional fees (Form PCT/ISA/206). It shows the results of the international search established on the parts of the international application which relate to the invention first mentioned in claims Nos.:
- 1-15**
2. This communication is not the international search report which will be established according to Article 18 and Rule 43.
3. If the applicant does not pay any additional search fees, the information appearing in this communication will be considered as the result of the international search and will be included as such in the international search report.
4. If the applicant pays additional fees, the international search report will contain both the information appearing in this communication and the results of the international search on other parts of the international application for which such fees will have been paid.

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 056 606 A (WESTINGHOUSE ELECTRIC CORP) 28 July 1982 (1982-07-28)	1-6, 11, 12, 14, 15
Y	page 7, line 7 -page 9, line 36; claim 1; figures 1,2,3,4A,4B,4C,5,8,9	1,9,10
Y	US 3 876 893 A (ROSS JOHN S H) 8 April 1975 (1975-04-08) column 2, line 29 -column 3, line 4; figures 1,2	1,9,10
A	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 02, 31 March 1995 (1995-03-31) & JP 06 327231 A (CHODENDO HATSUDEN KANREN KIKI ZAIRYO GIJUTSU KENKYU KUMIAI), 25 November 1994 (1994-11-25) abstract	4,6
A	US 4 228 375 A (BEERMANN HEINRICH ET AL) 14 October 1980 (1980-10-14) column 2, line 38 -column 3, line 1; figure 1	1,2, 5-10,12

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-15

stator support system

2. Claims: 16-24

stator coil cooling system

The prior art ep 56 606 discloses: a stator support system comprising an inner support tube, spaced windings, wedges (spacers) and a cross support; see fig. 3, 4a-4d, 5, 9 and pages 7-9.

From the above, the following objective problem can be formulated as to improve such a known apparatus to a better fixation of the wedges (spacers) on the cross supports. This problem is solved by the features of claim 7 that are not disclosed by the prior art document.

The Special Technical Features of subject 1 (claims 1-15), as defined in Rule 13(2) PCT, therefore, are:

- notches on the second (outer) edge of the wedges.

The 2nd group of claims (2nd invention) yields the non-disclosed (by the prior art document) potential Special Technical Features of:

- stator coil comprising cooling conduits and a thermally conductive member adjacent to the coil.

The problem to be solved by these claims could thus be said to be the provision of an apparatus that improves the cooling of the stator coil assembly.

{The potential Special Technical Features of subject 2, not known from the above mentioned prior art, are:

- stator coil comprising cooling conduits and a thermally conductive member adjacent to the coil.}

On the face of it, there are no technical features in the claimed inventions, which can be seen as common or corresponding special technical features within the meaning of Rule 13(2) PCT.

In determining a possible relationship between these 2 subjects, such as a common inventive concept, we find that the provision of a better fixation of the wedges on the cross support does not contribute to the aim of cooling the stator coil assembly and that the provision of stator coil comprising cooling conduits and a thermally conductive member adjacent to the coil does not contribute to the aim of improving fixation of the wedges on the cross support.

{The only common concept to be found is an improvement of the stator assembly but this cannot as such be said to present a common inventive concept.}

No further features are available by means of which a relationship between the subjects of claim 1 and claims 16-24 may be established.

Consequently, neither the objective problem underlying the subjects of the two claimed inventions, nor their solutions defined by the (special) technical features allow for a relationship to be established between the said inventions.

In conclusion, therefore, the two groups of claims are not linked by common or corresponding special technical features and define two different inventions not linked by a single general inventive concept. The application, hence does not meet the requirements of Unity of Invention as defined in Rule 13(1) & (2) PCT.

**Patent Family Annex**  
Information on patent family members

International Application No  
PCT/US 00/42110

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0056606	A	28-07-1982	CA 1181117 A1	15-01-1985
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			GB 1592240 A	01-07-1981
			JP 54045704 A	11-04-1979
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